APPLICATION FOR A DAM PERMIT FOR A CENTRALIZED IMPOUNDMENT DAM FOR MARCELLUS SHALE GAS WELLS

RANGE RESOURCES – APPALACHIA, LLC

CARTER IMPOUNDMENT
MOUNT PLEASANT TOWNSHIP, WASHINGTON COUNTY, PENNSYLVANIA

Prepared For:

Range Resources – Appalachia, LLC
380 Southpointe Blvd., Suite 300
Canonsburg, PA 15317

January 2010

January 14, 2010

Dr. Tae-Uk Kim
Pennsylvania Department of Environmental Protection
Bureau of Oil and Gas Management
400 Waterfront Drive
Pittsburgh, Pennsylvania 15222

Subject: Application for a Dam Permit for a Centralized Impoundment Dam
For Marcellus Shale Gas Wells
Carter Impoundment
Mt. Pleasant Township, Washington County, Pennsylvania

Dear Tae-Uk:

Range Resources – Appalachia, LLC (Range Resources) is submitting 2 copie sof the enclosed Application for a Dam Permit for a Centralized Impoundment Dam for Marcellus Shale Gas Wells for the Carter Impoundment located in Mt. Pleasant Township, Washington County, Pennsylvania. The application requests a permit to allow the collection/storage of flowback water from the hydraulically fracturing of natural gas wells to promote the re-use of the water. A check in the amount of $1500 is attached to the inside front cover of the original application for the application fee.

If you have any questions, or require any additional information, please call me at (724) 873-3226.

Respectfully submitted,

RANGE RESOURCES – APPALACHIA, LLC

Carla L. Suszkowski, P.E.
Regulatory and Environmental Manager

Range Resources - Appalachia LLC
380 Southpointe Blvd Suite 300 Canonsburg, PA 15317 Tel: (724) 743-6700 Fax: (724) 743-6790

RANGE RESOURCES CORPORATION
MANUAL CHECKS
100 THROCKMORTON ST SUITE 1200
FORT WORTH TX 76102

AMEGY BANK NA
25-1125-1136

51426

01/08/2010

Pay to the Order of Commonwealth of Pennsylvania $ **1,500.00

One thousand five hundred and 00/100********** Dollars

Commonwealth of Pennsylvania
Pennsylvania Department of Environmental Protectio
400 Waterfront Drive
Pittsburgh, PA 15222-4739

Dam Permit Application Fee

MP

⑈051426⑈ ⑆113011258⑆ ⑈0051896040⑈

RANGE RESOURCES CORPORATION / MANUAL CHECKS

01/08/2010	**Commonwealth of Pennsylvania**	51426
	Cowden Unit 2H-6H, Drugmand Unit 1-7H	1,500.00

Amegy Manual Acco	Dam Permit Application Fee	1,500.00

RANGE RESOURCES CORPORATION / MANUAL CHECKS

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Application for a Dam Permit for a Centralized Impoundment Dam for Marcellus Shale Gas Wells

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5500-PM-OG0084 Rev. 4/2009
Application

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF OIL AND GAS MANAGEMENT
BUREAU OF WATERWAYS ENGINEERING

DEP USE ONLY	
APS #	Site #
Permit #	Auth ID #

APPLICATION FOR A DAM PERMIT FOR A CENTRALIZED IMPOUNDMENT DAM FOR MARCELLUS SHALE GAS WELLS

A. APPLICANT IDENTIFICATION

Applicant	DEP ID#	Well Permit Number
Range Resources – Appalachia, LLC	***141142***	***See Attached Narrative for the well permit numbers associated with this impoundment***

Address	Well Farm Name and Number
380 Southpointe Blvd., Suite 300	***See Attached Narrative for the well permit numbers associated with this impoundment***

City	State	Zip Code	County	Municipality
Canonsburg	***PA***	***15317***	***Washington***	***Mount Pleasant Twp.***

Phone	Fax	Latitude	Longitude
(724) 873-3226	***(330) 587-1880***	N ***40° 19′ 41″***	W ***80° 17′ 46″***

B. DAM PERMIT APPLICATION FEE – Payable to "Commonwealth of Pennsylvania"

Maximum height of centralized impoundment dam embankment measured from outside toe-of-dam to the top-of-dam:
22 feet

Maximum Embankment Height		Dam Permit Application Fee
≤ 40 feet		$1500
≥ 40 feet		$2500

C. ACT 14 NOTIFICATION

Provide a copy of a letter to the county and municipality where the centralized impoundment dam is located and a copy of proof of receipt for each letter.

County letter and proof of receipt provided: ☒ Municipality letter and proof of receipt provided: ☒

D. CULTURAL RESOURCE NOTICE

Cultural Resource Notice and proof of receipt provided by PHMC: ☒

E. PENNSYLVANIA NATURAL HERITAGE PROGRAM

PNDI Attached: ☒ Any "hit" must include accepted mitigation plan from applicable agency.

F. COLOR PHOTOGRAPHS

Provide color photographs (four minimum) of the proposed centralized impoundment site with a location and orientation map.

Photographs and orientation map provided: ☒

G. EROSION AND SEDIMENT CONTROL PLAN

Provide a copy of the erosion and sediment control adequacy letter from the appropriate Regional Office Oil and Gas Management Program.

Adequacy letter provided: ☒

H. PROOF OF TITLE/FLOWAGE EASEMENTS

This application contains the following for all land area below top-of-dam elevation that is subject to inundation: (Check one)
☒ Proof of Title ☐ Flowage Easements

-I. MAPS, PLANS, PROFILES AND CROSS-SECTIONS

Maps, plans, profiles and cross-sections with a Professional Engineer. seal and signature must accompany applications. The maps, plans, profiles and cross-sections are to be developed in accordance with the "Design, Construction and Maintenance Standards for Dam Embankments associated with Impoundments for Oil and Gas Wells." If alternate construction standards are proposed, these alternate standards must be detailed in plans and specifications submitted with this application.

Maps, plans, profiles, and cross-sections with P.E. seal and signature provided: ☒

J. IMPACTS FROM IMPOUNDMENT FAILURE

Will the failure of this impoundment impact inhabited structures, cause serious property damage or flood roadways? ☐ Yes ☒ No

If yes, a Dam Permit Application must be submitted to the Division of Dam Safety.

If no, the Applicant and P.E. certify that failure of this dam will not impact inhabited structures, cause serious property damage, or flood roadways. ☒

K. CONSTRUCTION INFORMATION

Projected commencement date for construction: ***Impoundment construction is in progress***

Professional Engineer responsible for construction oversight: **Name:** ***Carla L. Suszkowski, P.E.***

PE Registration No: ***PE-073874***

L. GROUNDWATER PROTECTION REQUIREMENTS

1. TYPE OF FLUIDS STORED IN IMPOUNDMENT (Check one.)

☒ Freshwater ☒ Storage of Fracturing Fluids ☐ Other _____

2. SUBBASE

Is the bottom of the subbase within 2 feet of the seasonal high water table? ☐ Yes ☒ No

The subbase material is hard, uniform, smooth and free of debris, rock fragments, plant materials and other foreign material. ☒ Yes ☐ No

Design Data

a. Material ***Refer to the attached Narrative***

b. Depth ***Compacted to a depth of 6*** inches (minimum 6 inches)

c. Compaction Procedures ***Refer to the attached Narrative.***

3. LEAK DETECTION ZONE

Will a Leak Detection Zone be used? ☒ Yes ☐ No

Design Data ***Refer to the attached Narrative for a description of the design data.***

a. Thickness _____ inches (minimum 12 inches)

b. Particle size _____ inches (maximum 0.5 inch)

c. Permeability _____ cm/sec (minimum 1 x 10^{-2})

d. Slope _____ percent (minimum 2 percent)

Piping System ***Refer to the attached Narrative for a description of the piping system.***

a. Slope ***2*** percent (minimum 2 percent)

b. Diameter ***6*** inches (minimum 4 inches) ***Perforated PVC Pipe***

Geotextile material used between leak detection zone and liner ☒ Yes ☐ No

Specify type of geotextile material. ***6 oz/sy nonwoven geotextile – refer to the Construction Supervision Plan***

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4. LINER

Design Data

a. Material ***High Density Polyethylene (HDPE)***

b. Thickness ***40*** mils (minimum 30 mils)

c. Permeability ***<1 x 10^{-12}*** cm/sec (maximum 1 x 10^{7})

Attach a Quality Assurance Plan for installation of the liner. ***Refer to the attached Narrative.***

5. ADDITIONAL INFORMATION

Will the surrounding area be graded or diked to prevent surface water from entering the impoundment? ☒ Yes ☐ No

Briefly describe or explain. ***Refer to the attached Narrative.***

Will the sides be constructed to maintain a two (2) foot free-board and be protected against wave action? ☒ Yes ☐ No

How will the impoundment be protected from acts of third parties? ***A high tensile fence will be constructed around the entire impoundment.***

Is there a copy of the inspection plan for engineer's supervision during construction attached? ☒ Yes ☐ No

M. MONITORING PLAN (Attach Additional Sheets As Needed)

Describe the monitoring plan including groundwater monitoring wells, springs or seeps and leak detection zones. Include the number and characterization (thickness lithology, grain size, etc.) of water bearing zones. Attach a 7.5 Min. USGS TOPO Map showing the impoundment and location of all monitoring points.

Not applicable – a leak detection zone will be utilized in this impoundment, so groundwater monitoring is not required. The attached narrative response to Section L(3) provides a description of the leak detection zone for this impoundment. The leak detection zone will be monitored by one detection zone discharge point located to the southwest of the impoundment.

Identification Number of Upgradient Wells ***Not Applicable – there are no groundwater monitoring wells***

Identification Number of Downgradient Wells ***Not Applicable – there are no groundwater monitoring wells***

Identification Number of leak detection monitoring points ***The leak detection monitoring point will be noted as LDZ-1***

Identification Number of springs or seeps ***Not Applicable – there are no groundwater monitoring wells***

Description of other monitoring points including the identification number ***Not applicable – there are no other monitoring points.***

List Monitoring Point Parameters. Parameters must include Ph, TDS, Chlorides, Specific Conductance and sulfates.

Refer to the attached Narrative for more detail. The leak detection zone monitoring point will be monitored for the noted parameters, if flow is detected at the detection zone monitoring point and the chlorides content of the detected flow is similar to that of the water contained in the impoundment.

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Description of other monitoring points including the identification number

List Monitoring Point Parameters. Parameters must include Ph, TDS, Chlorides, Specific Conductance and sulfates.

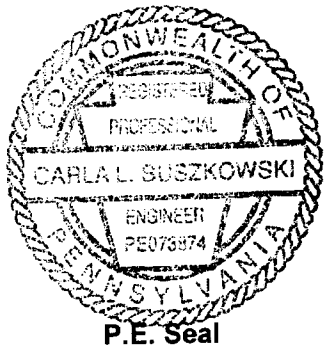
N. PROFESSIONAL ENGINEER'S SEAL AND CERTIFICATION

I *Carla L. Suszkowski, P.E.*, do hereby certify pursuant to the penalties of 18 Pa.C.S.A. Sec. 4904 to the best of my knowledge, information and belief, that the information contained in accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapters 78 and 105 of the rules and regulation of the Department of Environmental Protection.

PE *Carla L. Suszkowski*
(Print)

(Date)

PE _____
(Sign)



P.E. Seal

O. APPLICANT CERTIFICATION AND SIGNATURE

If Privately Owned, all owners (such as husband and wife) must sign. One or more members authorized to sign on behalf of an entire partnership must sign. For a Corporation, the president, vice president or other responsible official is required to sign. For Political Subdivision, signatures of a chief officer or other responsible official empowered to sign is required with the seal affixed and attested by the clerk. For Commonwealth departments, boards, commissions, receivers, trustees and authorities, a department head, bureau director, executive director, chairman, commissioner or other responsible official is required to sign. Signatures other than above must be accompanied by a power of attorney or other notarized legal documentation indicating authorization to sign on behalf of the applicant.

Application is hereby made for a permit to authorize the activities described herein. I certify I am familiar with the information contained in this application, and to the best of my knowledge and belief, such information is true, complete and accurate. I further certify I possess the authority to undertake the proposed activities.

I grant permission to the agencies responsible for authorization of this work, or their duly authorized representative, to enter the project site for inspection purposes. I will abide by the conditions of the permit if issued and will not begin work without the appropriate authorization.

BY: *Carla L. Suszkowski*
(PRINT NAME)

SEAL

_____
(SIGNATURE) (DATE)

Regulatory and Environmental Manager
(TITLE)

WITNESS: _____

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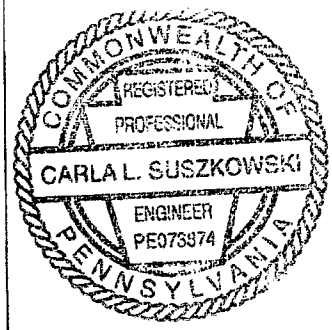
(Print)

(Date)

PE _____
(Sign)



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(PRINT NAME)

_____ SEAL
(SIGNATURE) (DATE)

Regulatory and Environmental Manager
(TITLE)

WITNESS: _____